

**REMARKS/ARGUMENTS**

The non-final office action mailed on June 21, 2011, has been reviewed and carefully considered. Reconsideration is respectfully requested.

**Amendments to the Claims**

Claims 22-51 were pending in the present application prior to this amendment. Claims 22-51 are now pending in the present application; among them, claims 22, 33, 37 and 48 are independent claims. Claims 22, 24, 25, 33, 34, 35, 37, and 48 been amended. No new matter has been added.

**Claim Objections**

In the office action (pages 4-5), claims 22, 24, 25, 34 and 35 stand objected to because of informalities. In response, the claims have been amended in accordance with the examiner's comment. Therefore, withdrawal of the aforementioned objection to claims 22, 24, 25, 34 and 35 is respectfully requested.

**Claim Rejections - 35 U.S.C. §103**

In the office action (page 5), claims 22, 23, 26-30, 33, 37, 38, 41-45, 48 and 51 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2002/0080887 (Jeong) further in view of WO 02/058388 (Ahn).

In the office action (page 14), claims 24, 25, 34, 35, 39, 40, 49 and 50 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jeong in view of Ahn, and further in view of "AVC + AAC The Next Generation of Compression" (Harmonic).

In the office action (page 15), claims 31 and 46 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jeong in view of Ahn, and further in view of "Digital Audio Boardcasting (DAB) Ensemble Transport Interface" (ETSI).

In the office action (page 16), claims 32 and 47 stand rejected under 35 U.S.C.

§103(a) as being unpatentable over Jeong in view of Ahn, and further in view of U.S. Patent No. 7,492,786 (Ferris).

The applicants have amended claims 22, 33, 37, and 48 to clarify the presently claimed invention.

### Comments for 103 Rejections

In the presently claimed invention, each of a **digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system** is configured to be the transmitting device or is configured to be a receiving device to receive each of a **digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system**, which each of the transmitting device and the receiving device is able to transmit and/or receiving data having a bit error rate of less than  $1 \times 10^{-8}$  (i.e.; see this added limitation relating to the BER in the amendment to claim 33). Each and every element of claims 22, 33, 37, and 48 are introduced in order to secure stable reception quality of multimedia data in a mobile channel environment and to embody efficient interactive multimedia data broadcasting, when multimedia data is transmitted/received being one of a **digital audio broadcasting system and any one of the other diverse digital broadcasting systems** after audio/video and data had been multiplexed together.

Accordingly, nowhere do any of the cited references disclose, suggests, or mentions each and every one of the above mentioned features of claim 22, 33, 37, and 48, which claim 22 recites in part:

—a systems encoding means for objectifying data for an interactive service and synchronizing a media stream which is outputted from **each of the audio/video** encoding means, a media stream of additional data, and a media stream which is generated by objectifying the data for the interactive service;

a multiplexing means for multiplexing **each of the** media streams outputted from the **system systems** encoding means;

an error correction encoding means for performing additional error correction encoding onto a media stream outputted from the multiplexing means;

an interleaving means for removing temporal correlation between

adjacent byte units within a media stream outputted from the error correction encoding means; and  
a first transmitting means for transmitting a digital multimedia broadcasting media stream outputted from the interleaving means,  
wherein **the first transmitting means is any one each** of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, **or and** a digital cable broadcasting system **are configured to be the first transmitting means**--.

Claim 33 recites in part:

--a first receiving means for receiving digital multimedia broadcasting media stream **having a bit error rate (BER) of less than  $1 \times 10^{-8}$** ,

a deinterleaving means for deinterleaving the received digital multimedia broadcasting media stream which is interleaved to remove temporal correlation in adjacent byte units;

an error correction decoding means for performing additional error correction decoding onto the deinterleaved digital multimedia broadcasting media stream which is generated from additional error correction encoding;

a demultiplexing means for demultiplexing the additional error correction decoded digital multimedia broadcasting media stream which is multiplexed;

a systems decoding means for decoding the demultiplexed digital multimedia broadcasting media stream to produce **each of** media stream, additional data, and data objectified for an interactive service; and

an audio/video decoding means for decoding the media stream into audio/video signals,

wherein **the first receiving means is any one each** of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, **or and** a digital cable broadcasting system **are configured to be the first receiving means**--.

Claim 37 recites in part:

--b) objectifying data for an interactive service and synchronizing a media stream which is outputted from the step a), **comprising each of** a media stream of additional data, and a media stream which is generated by objectifying the data for the interactive service;

c) multiplexing the media streams outputted from the step b);

d) performing additional error correction encoding onto a media stream outputted from the step c);

e) performing interleaving to remove temporal correlation between adjacent byte units within a media stream outputted from the step d); and

f) transmitting a digital multimedia broadcasting media stream outputted from the step e),

wherein the step f) is performed by using any one each of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, or and a digital cable broadcasting system are configured to be the transmitted digital multimedia broadcasting media stream outputted from the step e)--.

Claim 48 recites in part:

—e) decoding the demultiplexed digital multimedia broadcasting media stream to produce each of media stream, additional data, and data objectified for an interactive service; and

f) decoding the media stream into audio/video signals,  
wherein the step a) is performed by using any one each of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, or and a digital cable broadcasting system are configured to be the received digital multimedia broadcasting media stream inputted into the first receiving device--.

Support for the claims 22, 33, 37, and 48 are found in the specification at least at page 8, lines 5-19; page 1, lines 15-34; and FIGs. 2A and 2B.

Therefore, the applicants respectfully submit that the cited prior art references fails to disclose or suggest each and every one of the limitations recited above in claims 22, 33, 37, and 48 of the presently claimed invention.

Thus, the applicants respectfully submit that claim 22, 33, 37, and 48 are in condition for allowance over the applied references.

## DEPENDENT CLAIMS

The other new claims are dependent from either claim 22, claim 33, claim 37, or claim 48 discussed above. Thus, dependent claims depending from each of claims 22, 33, 37, and 48 are therefore believed patentable for at least the same reasons mentioned above for claims 22, 33, 37, and 48. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

## Conclusion

For the reasons set forth above, the applicant respectfully submits that claims 22-55, now pending in this application, are in condition for allowance over the cited

references. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the outstanding rejections and earnestly solicits an indication of allowable subject matter.

This amendment is considered to be responsive to all points raised in the office action. The examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve any remaining questions or concerns.

Respectfully submitted,

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